

XP-002261662

1 - (C) FILE CA

STN CA Caesar accession number : 1203

AN - 125:17011 CA

TI - Preparation of spherical silica by a flame method

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CS - Dep. Appl. Chem. Biotechnol., Fac. Eng., Yamanashi Univ., Kofu, 440, Jap

SO - Muki Materiaru (1996), 3(262), 219-224

CODEN: MUMAFX; ISSN: 1340-7899

PB - Sekko Sekkai Gakkai

DT - Journal

LA - Japanese

CC - 57-2 (Ceramics)

AB - Fusion of ground natural quartz powder was carried out in propane-oxygen flames. The flow rates of propane and oxygen gases and powder feed rate were varied from 5 to 12.5 and from 25 to 62.5 Nm³/h and from 3 to 50 kg/h, resp., but the flow rate of oxygen carrier gas at 7.5 Nm³/h was kept const. Two types of burners were used, where a powder-feeding nozzle was placed axially at the center of burner and six nozzles were around the center of another type of burner. The vitrification ratio of about 80% was obsd. when the powder was treated at the condition of the gas flow rates of 5 for propane gas and 25 Nm³/h for oxygen gas, and the feed rate of powder at 20 kg/h. Small particles showed higher vitrification ratio and sphericity than large one. It was also found that high vitrification ratio was obtained using the burner with six nozzles. Small particles some hundreds of nanometers in size which are generated in the flame contributing to an increase of specific area of products.

ST - silica spherical particle propane oxygen flame

IT - Particle size

Surface area

(prepn. of spherical silica by fusion of ground natural quartz powder in propane-oxygen flames)

IT - Flame

(propane-oxygen; prepn. of spherical silica by fusion of ground natural quartz powder in propane-oxygen flames)

IT - 74-98-6, Propane, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(flame; prepn. of spherical silica by fusion of ground natural quartz powder in propane-oxygen flames)

IT - 7631-86-9, Silica, processes

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(spherical powders; prepn. of spherical silica by fusion of ground natural quartz powder in propane-oxygen flames)